

With the Author's Compliments

REPORT

OF THE

Municipal Hospital,

(COMPRISING STATISTICS OF 1,227 CASES OF SMALL POX)

BY

WM. M. WELCH, M.D.,

PHYSICIAN IN CHARGE.

FROM THE ANNUAL REPORT OF THE BOARD OF HEALTH OF THE CITY OF
PHILADELPHIA, FOR THE YEAR 1871.

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MUNICIPAL HOSPITAL,

Philadelphia, February 28, 1872.

TO the PRESIDENT and MEMBERS

of the BOARD of HEALTH.

GENTLEMEN:—I have the honor to transmit to you the annual statement of the operations of the Municipal Hospital, for the year ending December 31, 1871.

Philadelphia has never before been visited by an epidemic of small-pox that will compare in magnitude or malignancy with the one that is now invading us, and the number of cases admitted into the hospital for treatment during the past year is also unparalleled in the history, not only of this, but of all the hospitals of a similar character, that have heretofore existed in Philadelphia.

My report will show the presence of small-pox in the city, to a limited extent only, throughout the first six months of the year. It was not until about the middle of August, that the disease showed indications of an approaching epidemic. During the latter part of August, and the month of September, there was a gradual increase in the number of cases, followed by a very rapid increase throughout the months of October, November, and December, each successive month, as it were, rivalling its former in numbers, until we find our city at the close of the year, at the very climax of an epidemic of small-pox of no ordinary type.

I regret, therefore, that in the discharge of duty I am called upon at this stage of the epidemic to prepare a report, for two reasons, viz.: First, because of the want of time, owing to the

rapidly increasing number of patients, to fully analyze the notes that I have taken, which are spread over many pages of the Record Book.

Second, because I feel that it is in a measure unfair, if not unwise, to present to the public, statistics which include only the origin and development of an epidemic.

I trust, therefore, that all due allowance will be made for the statistics presented under these circumstances, and promise when the epidemic shall have ended, to present a general report upon it, comprising not only its origin and development, but also its climax and decline.

The following table will show the number of patients remaining in the hospital January 1, 1871, the number admitted during the year, the number discharged, the number died, and the number remaining under treatment December 31, 1871 :

Remaining Jan. 1, 1871.	Admitted.	Discharged.	Died.	Remaining Dec. 31, 1871.
3	1,249	602	363	287

The ordinary capacity of the hospital is one hundred and ninety beds, independent of the room occupied by the nurses and attendants, while you have seen by the table that two hundred and eighty-seven patients are being provided for. The highest number under treatment at any one time was three hundred and twelve, being one hundred and twenty-two more than the ordinary capacity of the building. In order to meet this extraordinary demand we have improvised room by enclosing two of the large corridors, each of which will accommodate from twenty-five to thirty convalescents; and in addition to this, we have pitched a number of army hospital tents, which with board floors and coal stoves, are made comfortable, even in the coldest weather.

Notwithstanding the extraordinary demand upon our room, I have scrupulously guarded against over-crowding my sick patients. If, in any emergency, anything like over-crowding has been practised, it has been among the convalescents who have

passed beyond any contingent danger from the disease. The principal wards of the hospital receive the sick as they arrive and each adult patient has for his or her share twelve hundred cubic feet of air; this, with due regard to ventilation and disinfection, will maintain an atmosphere in the wards not at all unpleasant.

The ordinary cooking apartment was also found inadequate to our wants, and in order to meet the requirements it became necessary to erect a temporary kitchen, and to supply it with the ordinary cooking appliances. We are now prepared to cook for five hundred patients. A new oven has also been erected, and is now in successful operation. It is large enough to bake one hundred and twenty-five loaves of bread at one time.

A more thorough supply of water and the introduction of gas are the two most pressing needs of the hospital at this time. So long as the hospital must depend for its supply of water upon the uncertain source of a cistern or well, and this water requires to be raised to the top of the building, there to be received into a large receptacle, where, in cold weather, it is liable to freeze, thus interfering with its proper distribution; and so long as the engine that pumps the water is liable to get out of repair, and skilled mechanics cannot be induced to enter the building in times of an epidemic, when it is filled with a contagious disease, to make repairs, just so long will the supply of water remain imperfect. It is within bounds when I state that fully one-half of all the water used throughout the present epidemic has been carried in buckets for a distance of half a square. The embarrassments arising from this source interfere very materially with the efficient working of a hospital of this size and character. This you will readily appreciate, and I have no doubt a remedy will be sought by you that will obviate the difficulty and give us an abundant supply of water.

The apparatus introduced only a year or two since for the purpose of manufacturing gas from gasoline, has proved, for some reason, not merely dissatisfactory, but entirely useless. Our only alternative, then, has been coal oil, the use of which is not

only inconvenient but more or less dangerous ; for we have had a number of explosions through its use, which, with the scarcity of water, might have proved a serious loss to both life and property. The remedy that is needed to supply this want will, no doubt, also be sought by you.

The admissions into the hospital, with variolous and other diseases, in the several months of the year, were as follows :

MONTHS.	Variolous Disease.	Other Diseases.	TOTALS.
January	5	2	7
February	2	...	2
March	3	3	6
April	6	...	6
May	5	3	8
June	3	2	5
July	2	...	2
August	13	2	15
September	25	...	25
October	228	1	229
November	437	3	440
December	498	6	504
Totals	1,227	22	1,249

The diseases classified in the preceding table as "Other Diseases," may be divided as follows:

DIAGNOSIS.	Admitted.	SEX.		COLOR.		Died.
		Male.	Female.	White.	Black	
Scarlatina.....	2	2	...	1	1	
Relapsing Fever.....	3	1	2	3	...	
Varicella.....	1	...	1	...	1	
Lichen.....	1	...	1	1	...	
Hepatic Derangement.....	1	1	1	
Diarrhœa.....	1	1	1	
Strophulus.....	1	1	...	1	...	
Rubeola.....	1	...	1	1	...	
Debility.....	1	...	1	1	...	1
Paralysis.....	1	...	1	1	...	*1
No Disease.....	9	2	7	9	...	
Totals.....	22	8	14	18	4	2

* This patient died January 27, 1872.

The two cases of scarlatina were of the employees at the hospital, one of whom seems to be peculiarly susceptible to all varieties of contagious disease; for within a comparatively short time, he has passed through respectively varioloid, relapsing fever, and scarlet fever, from the last of which he barely recovered, after a tedious and painful illness of one hundred days.

The three cases of relapsing fever were admitted during the month of May. They all came from a tenement house on Mayland Street, in the vicinity of Sixth and Race Streets, where I learned there had been in all about one dozen cases. The disease, however, was prevented from spreading through the prompt and efficient action of your Board.

The only feature of interest in these cases is, that one of them, a babe only nine months old, passed through a regular course of the disease, relapsing on the fourteenth day; being one of the youngest subjects of relapsing fever I have ever met.

The subjects of varicella, lichen, strophulus, and rubeola were all sent to the hospital, as cases of variola.

These mistakes, which might have been serious in their results, proved innocent, inasmuch as we were able at that time to separate these patients from our variolous subjects. The case of varicella, however, was placed, before I saw it, in a ward along with variolous patients; as soon as the mistake was discovered, the child, unprotected by vaccination, was at once vaccinated. This proved successful, and variola was prevented.

The patients with hepatic derangement and diarrhoea, were sent to the hospital from a vessel, under circumstances suspicious of typhus fever, which, however, did not result as such.

The case of "Debility" was an infant, aged two days, born at seven months of utero-gestation, and sent to the hospital with its mother, who had variola. It died of sheer debility one hour after its admission.

The case of paralysis, a female, aged thirty years, was sent to the hospital along with her husband and entire family consisting of four children. The children were all unvaccinated, all had variola, and all died. The husband had been vaccinated in infancy, showed three fair cicatrices, had varioloid mild, and recovered. The patient with paralysis, had also dementia, and was, therefore, unable to give any intelligent account as to whether or not she had ever been vaccinated, but after a thorough examination, I was unable to find the slightest trace of a vaccine cicatrix, nor was I able to discover any evidence to show that she had ever had variola. Notwithstanding this, she was an inmate of the hospital, and surrounded with small-pox patients for a period of sixty-four days, at the end of which time she died, without having contracted variola.

The nine admissions, classified as "No Disease," were in good part, either mothers admitted with their babes, who had variolous

disease, or else babes admitted with their mothers, who had variolous disease. Their names were recorded for the purpose of noting the degree of protection afforded by their vaccinations, and as we find them classified as "no disease," they proved, therefore, perfectly protected.

By analyzing the notes on their cases, we find as follows: Six were adults, one a boy of eight years, and two were babes. Four of the adults were protected by their vaccination of infancy, one of which I subjected to the test of a re-vaccination without any result. The other two had been successfully re-vaccinated since the age of puberty. The boy, eight years old, had been vaccinated in infancy, and showed a very good mark. And the two babes, aged ten months and three months, had both been recently and successfully vaccinated. One eight days, the other, two or three months prior to admission.

The following is a table of the variolous diseases, divided into variola and varioloid. Showing the number of admissions of each, together with the number of deaths, and the rate of mortality of each.

DISEASE.	Admitted.	Died	Percentage of Deaths.
Variola	677	353	52.14
Varioloid.....	550	8	1.45
Totals.....	1,227	361	29.42

In making a differential diagnosis, between the two varieties of the disease, I have paid no regard as to whether my patient had or had not been vaccinated, except to classify all unvaccinated cases, no matter how mild, as variola. The difference between the two, variola and varioloid, being one of degree rather than of kind, the distinction which is made, must, therefore, be an arbitrary one. There is, however, no difficulty in drawing this line of distinction between well marked cases of either variety; but when it becomes

difficult to decide, whether the vaccination is or is not exercising any modifying influence, then the diagnosis cannot be so clearly made. The rule which I have adopted in forming my diagnosis has mainly been to classify all cases as varioloid which have been vaccinated, and in which the rash reaches its height on or before the sixth or seventh day from its first appearance. While I have classified as variola all unvaccinated cases, and all others in which the rash has not arrived at maturity prior to a period varying from the seventh to the tenth day.

We have seen by the table that the rate of mortality among the variola cases has been 52.14 per cent., while among the varioloid cases it has been only 1.45 per cent. This comparatively low death rate of varioloid, finds its explanation in the diagnostic distinction which I have made between the two varieties of the disease. In all the deaths from varioloid there has been either some constitutional peculiarity or some intercurrent disease that has been auxiliary in terminating life.

We have reported three hundred and sixty-three deaths, and have accounted for three hundred and sixty-two in our tables, leaving one still unaccounted for. This was the case of a female, aged sixty years, admitted with varioloid, from which she entirely recovered; but during the initial stage of the disease, before entering the hospital, in a state of delirium, she jumped from the third-story window of the building where she resided, and sustained such injury to her ankle joint as resulted in a suppurating wound, giving rise to pyemia, of which she died after a residence of twenty-seven days in the hospital.

The number of variolous patients admitted during the year is twelve-hundred and twenty-seven (1227). This, of course, includes all, from the mildest form of varioloid to the gravest type of variola. From this number we had three hundred and sixty-one deaths; giving a rate of mortality of 29.42 per cent. This is extraordinarily high; but then, I think, if due allowance be made for hospital excess, it will compare favorably with the general results of the city.

The Health Officer has informed you that during the same period of time eight thousand one hundred and fourteen (8,114) cases were reported in the city, from which there were one thousand eight hundred and seventy-nine (1879) deaths; the rate of mortality being 23.15 per cent. These figures, together with all others that I shall present, afford conclusive evidence to prove the correctness of what I have already stated, viz.: that the present epidemic is of an extraordinarily malignant type.

The following table will show the number of white and black patients admitted with variolous disease, the deaths, and the rate of mortality of each:—

COLOR.	Admitted.	Died.	Per cent. of Deaths.
White	1,041	297	28.53
Black	186	64	34.4
Totals.....	1,227	361	29.42

We learn from these figures that the percentage of deaths is greater among the blacks. This may be accounted for from the fact that blacks are not only more susceptible to the disease, but that a larger proportion of them have been admitted unvaccinated. I regret that I have not had time to separate the unvaccinated white from the unvaccinated black, for that would have determined whether the blacks, according to the general impression, are more susceptible to the disease than the whites. This information I will furnish you at another time.

In examining the vaccine cicatrices of the blacks I have observed one peculiarity, which is, that instead of being slightly excavated and pitted, or honey-combed, they frequently present a slightly elevated appearance, smooth and glossy. If, however, they are the result of genuine vaccinations, they prove equally protective.

The following table will show the sex of the patients admitted with variolous disease, the number of deaths, and the death-rate of each :—

SEX.	Admitted.	Died.	Per cent. of Deaths.
Male	817	233	28.51
Female	410	128	31.21
Totals.....	1,227	361	29.42

It appears from this table that the number of males admitted has been about double that of the females, while the percentage of deaths of females exceeds that of the males—a difference for which I have no explanation to offer.

The following table will show the admissions of variolous subjects between the ages there designated, together with the number of deaths and the rates of mortality :—

AGES.	Admitted.	† Died.	Per cent. of Deaths.
Under 1 year	12	10	83.33
1 to 15 years.....	162	60	37.
15 to 25 years.....	599	185	30.88
25 to 45 years.....	383	108	28.19
45 years and upwards.....	71	24	33.8
Totals.....	1,227	387	31.54

† This table includes the deaths that have occurred this year from among the patients remaining in the hospital, January 1, 1872.

In this table we find that by far the highest rate of mortality is, just as we would expect, among infants under one year of age.

By consulting the notes on their several cases, we learn as follows:—

Seven of the twelve—aged 3, 5, 6, 7, and 9 months—were all unvaccinated, and all died. The other five had been very recently vaccinated. One, a babe 4 months old, had been vaccinated only five days prior to the appearance of the eruption, had variola, and died on the eighth day of the rash. Another babe, aged 5 months, was admitted unvaccinated and well, with its mother, from whom it was nursing, and who had variola. It was vaccinated the following day; a feeble vaccine vesicle appeared; but one week subsequent to the date of vaccination the variolous eruption showed itself; the throat became involved, difficult respiration ensued, and the child died on the eighth day of the rash, from a varioloid attack.

Another babe, aged seven months, well, but unvaccinated, was admitted, with its mother, who had variola, and from whom it was nursing. It was vaccinated the following day, a feeble vaccine vesicle developed, but six days from the date of vaccination the variolous eruption appeared, and the child died of variola on the fifth day of the rash. Its death was preceded by convulsions.

Another babe, aged ten months, was admitted, without its mother, with discrete variola on the seventh day of the eruption. It had been vaccinated, judging from the appearance of the vesicle, about ten days prior to its admission, or three days before the appearance of the eruption. Its case progressed favorably, desquamation was rapid, and the child recovered; but I do not think the disease was modified by the vaccination.

And the other babe, aged three months, had been vaccinated about eight days prior to the appearance of the eruption, and showed a very good vaccine vesicle. It had a very mild attack of varioloid, the eruption consisting of only three or four vesicles, which did not apparently disturb its general health. It had been vaccinated after exposure, for a brother, unvaccinated, had died of variola.

From these facts, then, we learn that variola in unvaccinated infants is almost uniformly fatal; and that vaccination per-

formed less than seven days prior to the appearance of the eruption, will not modify the disease, but when performed as long as seven or eight days prior it may so far modify the disease as to render it harmless.

These facts I have verified time and again in children at other ages; and indeed I cannot see any good reason for expecting any benefits from vaccination until the system is brought thoroughly under the influence of the vaccine disease, which, in all probability, does not take place before the maturation of the vaccine vesicle. If a genuine vaccination has reached this stage of development before an exposure to variola, I am fully convinced that it will almost certainly afford immunity from the disease.

The next period of life noted in the table, viz. : from one to fifteen years, gives us the next highest rate of mortality. I regret here again, that I have not had time to divide these admissions into vaccinated and unvaccinated, that we might learn the degree of protection which vaccination affords up to the age of puberty. This information I will also furnish you at another time. I have no doubt, however, that it will show very satisfactory evidence in favor of recent vaccinations.

The third period of life, from fifteen to twenty-five years, while it is the shortest period noted in the table, except that of infancy gives us by far the largest number of admissions, showing, as I believe, the increased susceptibility on the part of those vaccinated in infancy to the disease after the age of puberty, and especially during adolescence. There is nothing in the death-rate, comparatively speaking, that is remarkable.

The period of life from twenty-five to forty-five years, shows the lowest rate of mortality; while from forty-five years upwards, the death-rate is again increased.

The following table will show the number of variolous subjects admitted unvaccinated, the number of deaths and the death-rate; also, the number that had been vaccinated in infancy, dividing them into those showing either good, fair or poor cic-

trices, together with the number of deaths, and the rate of mortality among those of each division :

*	Admitted.	Died.	Per cent. of Deaths.
Not vaccinated.....	390	254	65.12
Vaccinated in infancy } good } cicatrix	332	33	9.93
Vaccinated in infancy } fair } cicatrix	166	27	16.26
Vaccinated in infancy } poor } cicatrix	301	68	22.59
Total number vaccinated ...	799	128	16.

* There is a discrepancy of 38 between the number of admissions noted in this table, and the number noted in the other tables, which finds its explanation in the fact that some of the patients died unexamined, while a few others had been so recently vaccinated as to preclude their classification in this table.

Those that have died this year (1872) from among the patients remaining in the hospital January 1, 1872, are included in this table.

I have classified in the table as good cicatrices all those with a well defined margin, slightly excavated, and pitted or honey-combed, as they are sometimes aptly described; while those presenting these characteristics to a much less degree, I have classified as fair; and those as poor which are pointed out by the patient as the result of vaccination, but which are so indistinct, or uncharacteristic, as to make it difficult to recognize them as vaccine scars.

The proportion of deaths among the unvaccinated, as appears from the table, is indeed enormous. It is just double the ordinary death-rate, which has long been regarded as 33 per cent., and so I believe the death-rate of those vaccinated in infancy, is out of its ordinary proportion to the extent of being multiplied by two.

There are two reasons that may be assigned for these large mortality rates, and I believe only two. The first and chief

reason is, the virulence of the epidemic. The second, that in many instances only the graver cases are sent to the hospital, and many of these not until all hope of their recovery is passed.

But the table teaches more than the great virulence of the epidemic. It demonstrates most clearly the protective power of vaccination, and more than this, for it also demonstrates, with equal clearness, that in the appearance of the vaccine cicatrices there is evidence to show the degree of protection afforded. For among those presenting good cicatrices the rate of mortality is by far the lowest, while of those showing fair cicatrices the rate is still lower than among those showing poor cicatrices.

What then is the lesson to be learned from these facts? It is very short, very clear, and very important. It is, Vaccinate! Vaccinate thoroughly, and secure for your patients, if possible, good cicatrices.

In our table we have found the percentage of deaths among our post-vaccinal cases to be 16 per cent. Let us suppose then that the three hundred and ninety (390) unvaccinated cases had been vaccinated in infancy; instead of having two hundred and fifty-four (254) deaths, they would have been reduced to sixty-two, (62) a saving of one hundred and ninety-two (192) lives by vaccination. Again, let us suppose that all who were admitted during the year had been thoroughly vaccinated in infancy, and good cicatrices had been secured; instead, then, of having three hundred and eighty-two (382) deaths, as appear in the table, we would have had only one hundred and eighteen, (118) a saving of two hundred and sixty-four (264) lives.

And now let us apply the same reasoning with reference to the whole number of cases of small-pox (8,114) that have occurred in Philadelphia thus far in the epidemic (to January 1, 1872), and see what results it will give us.

Taking, then, as our basis, the hospital record as exemplified in the table last referred to, we may estimate as follows:—

First. The whole number of unvaccinated variolous cases that have occurred in Philadelphia.

Second. The number showing good vaccine marks.

Third. The number showing fair vaccine marks.

Fourth. The number showing poor vaccine marks.

We may estimate the number of cases occurring under each of these classifications, by proceeding as follows: As the number of cases admitted into the hospital is to the whole number of cases in the city, so is the number of cases, admitted into the hospital unvaccinated, or vaccinated in infancy, showing either good, fair, or poor cicatrices, to the whole number of cases that has occurred in the city unvaccinated, or vaccinated in infancy, showing either good, fair, or poor cicatrices. For example, as 1189: 8114:: 390: 2661, the number that has occurred in the city unvaccinated. Then, as 1180: 8114:: 332: 2266, the number that has occurred in the city, vaccinated in infancy, and showing good cicatrices. Then, as 1189: 8114:: 166: 1133, the number that occurred in the city, vaccinated in infancy, and showing fair cicatrices. Then, as 1189: 8114:: 301: 2054, the number that occurred in the city, vaccinated in infancy, and showing poor cicatrices.

In like manner, we may estimate the number of deaths that has occurred in the city from among those unvaccinated, or from among those vaccinated in infancy, showing either good, fair, or poor cicatrices. This I have done and I will present to you the following table, which I have made from these estimated numbers:—

	Cases	Died.	Per cent. of Deaths.
Number of cases unvaccinated in Philad'a	2,661	1,249	46.93
“ “ } vaccinated in infancy, } showing good cicatrices	2,266	162	7.14
“ “ } vaccinated in infancy, } showing fair cicatrices..	1,133	133	11.73
“ “ } vaccinated in infancy, } showing poor cicatrices	2,054	335	16.3
Total number of post-vaccinal cases...	5,453	630	11.55

In our table then, we find that 46.93 per cent. is the rate of mortality among the unvaccinated cases in the city, while the mean percentage of deaths among the vaccinated is only 11.55 per cent. Let us suppose, then, that the 2,661 unvaccinated cases had been vaccinated in infancy, instead of having 1,249 deaths they would have been reduced to 307, a saving of 942 lives. Again let us suppose that all the subjects of small-pox in Philadelphia had been not simply vaccinated in infancy, but thoroughly vaccinated and good cicatrices secured, then instead of the enormous mortality from this loathsome and terrible disease, to the extent of 1,879 deaths (the number that occurred in the city during the year), it would have been in an epidemic of unparalleled malignancy only 579—a saving of 1,300 lives. Yes, more than thirteen hundred (1,300) lives could have been saved, for this estimate assumes that every one of those who had small-pox, would also have had it, had they been thoroughly vaccinated, which would not have been the case. It is, I think, pretty generally conceded by authorities, that thorough vaccination in infancy will protect 50 per cent. for a lifetime. Hence to form an estimate that will more nearly approximate the truth, we proceed as follows: Take from 8,114—the total number of cases that occurred in the city—2,266, the number that showed good cicatrices, and there remains 5,848, the sum total of the number unvaccinated, and the number vaccinated in infancy that did not show good cicatrices.

Well now according to what is generally conceded, if this number had all been thoroughly vaccinated in infancy, only 50 per cent. of them would have had small-pox; the other 50 per cent. would have enjoyed immunity. 50 per cent. of 5,848 is 2,924; this, added to 2,266, the number with good cicatrices that had small-pox, gives us 5,190, which would have been the sum total of cases in the city instead of 8,114. We have found the death-rate among those showing good cicatrices to be 7.14 per cent. The total number of deaths then in the city, would have been only 370 instead of 1,879 a saving of 1,509 lives. This estimate is yet wide of the mark, for we have seen that by

thorough vaccination in infancy 2,924 would not have contracted variola. Who then can estimate the number that contracted the disease from these? It is reasonable to suppose that very many did. If, the number that did could be estimated and deducted from the 5,190, it would have reduced the total number of cases in the city still lower, and also the number of deaths in the same ratio. Ah! we may deal with figures as we will, and while to a certain extent they show us facts, they fail to demonstrate the incalculable benefits resulting from vaccination.

One fact that we are able to demonstrate is that 1,500 lives—all lost within a few short months—might have been spared in Philadelphia alone if vaccination had been thoroughly performed in infancy. Yes, 1,500 lives; I assert it boldly and proudly,—boldly, because I know it is true,—proudly, because it shows what medical science can do for the preservation of human life.

To me it is a matter of surprise that, after all the accumulated experience and long array of facts in favor of vaccination, which have been collected and presented to the public repeatedly during the last three-quarters of a century, there should be a single reasonable being who could even so much as doubt its efficacy. And yet there are those, surprising as it is, who characterize vaccination as “systematic poisoning in the name of science,” and have even gone so far as to associate themselves together under the name of “Anti-Vaccination League,” for the inhuman purpose of resisting this humane practice. I do not hesitate to say that very many of these 1,879 lives that have been so recently sacrificed in Philadelphia by this most preventable of all contagious diseases, have fallen as innocent victims, and some perhaps as self-made martyrs, to this unholy creed.

I rejoice that Philadelphia, unlike London, does not possess an anti-vaccination league, and that the medical profession here and throughout the State of Pennsylvania are so near a unit as regards their confidence in the prophylactic power of vaccination; for we find in the transactions of the Medical Society of the State of Pennsylvania, at its twenty-first annual session, held

at Philadelphia, June, 1870, that Dr. S. D. Gross, of Philadelphia, offered the following preamble and resolution, which was unanimously adopted.

“WHEREAS, There are still many persons in every community who are disbelievers in the prophylactic powers of vaccination, and many also who oppose the operation on the ground of its positively injurious effects upon the system of the individual. Therefore,

“*Resolved*, That the Medical Society of the State of Pennsylvania have unshaken confidence in its protective virtues, and that they strongly recommend the imperative importance of it as the only safe means of preventing the spread of small-pox to every inhabitant of the State.”

And, again, at its next session, held at Williamsport, June 1871, Dr. Benjamin Lee, of Philadelphia, on behalf of the Committee on Meteorology and Epidemics, presented the following resolutions :

“*Resolved*, That it is the unanimous conviction of this Society :

“First. That the comparative immunity which our country, and the civilized world generally, now enjoy from the decimating scourge of small-pox, is due entirely to the protective and modifying influence of vaccination.

“Second. That the danger of transmitting other constitutional diseases through the medium of vaccination is so infinitesimally small that it does not deserve to be placed in the scale as opposed to the immense benefit which the operation confers.

“Third. That a subjection of the entire population to its protective agency would result in the complete stamping out of this dread disease in its fatal and loathsome form.

“Fourth. That the wide prevalence of the disease at the present time, in certain cities of Europe and America, traceable in a considerable degree to a neglect of the above-mentioned preventive measure, conveys a warning which it would be most unwise to disregard, and therefore,

“*Resolved*, That a committee be appointed to memorialize the State Legislature at its next session upon the importance of

adopting and enforcing by legislative enactment a system of compulsory vaccination."

On motion of Dr. A. Nebinger, of Philadelphia, a committee was appointed to present the matter before the Legislature of Pennsylvania.

Such, then, is the sentiment of the medical profession in Philadelphia and throughout the State of Pennsylvania. I, therefore, indulge in the hope that through the combined effort of your Board and the Medical Society of the State of Pennsylvania, our State Legislature may be induced, before the present session shall have ended, to enact a law providing for every helpless, innocent, new-born babe of her Commonwealth, vaccination as its birth-right.

The following table will show, classified into nativities, the number of variolous patients admitted unvaccinated, and the number vaccinated in infancy, showing either good, fair, or poor cicatrices, together with the number of deaths, and the death-rate of each classification :

		Admitted.	Died.	Per cent. of Deaths.
United States.	Not vaccinated.....	302	198	65.56
	Vaccinated in infancy } good cicatrix	172	13	7.55
	Vaccinated in infancy } fair "	86	16	18.6
	Vaccinated in infancy } poor "	169	42	24.85
	Post-vaccinal cases...	427	71	16.62
Germany.	Not-vaccinated	19	9	47.37
	Vaccinated in infancy } good cicatrix	94	11	11.7
	Vaccinated in infancy } fair "	53	6	11.32
	Vaccinated in infancy } poor "	74	6	8.1
	Post-vaccinal cases...	221	23	10.4
Ireland.	Not vaccinated	55	37	67.27
	Vaccinated in infancy } good cicatrix	45	6	13.33
	Vaccinated in infancy } fair "	15	3	20.
	Vaccinated in infancy } poor "	40	15	37.5
	Post-vaccinal cases...	100	24	24.
Other nativities.	Not vaccinated.....	9	6	66.66
	Vaccinated in infancy } good cicatrix	20	3	15.
	Vaccinated in infancy } fair "	10	1	10.
	Vaccinated in infancy } poor "	17	4	23.53
	Post-vaccinal cases...	47	8	17.
Unknown nativ.	Not vaccinated.....	5	4	80.
	Vaccinated in infancy } good cicatrix	1		
	Vaccinated in infancy } fair "	2	1	50.
	Vaccinated in infancy } poor "	1	1	100.
	Post-vaccinal cases..	4	2	50.

This I regard as the most interesting table in the report, for it contains all that the other tables contain with reference to vaccination, and in addition, enables us to make comparison between the vaccinations performed in the United States, Germany, and Ireland, these being the only nativities of any considerable number of patients received.

According to this table, then, we find that the United States gives us a death-rate among the unvaccinated of 65.56 per cent., Germany 47.37 per cent., Ireland 67.27 per cent., other nativities 66.66 per cent. In "other nativities" are included England, France, Canada, &c. Unknown nativities, 80 per cent. In "unknown nativities" are included all those who did not know where they were born, and those who were received moribund, or physically unable to give their birth-place. We learn from this comparison that variola is most fatal among the Irish, and least fatal among the Germans. There is, however, one thought which occurs to me, and I think it would be just as well to record it here. It is, that I have classified as unvaccinated all those who said they had been vaccinated in infancy, and yet could show no vaccine scar. It is possible then, and I think highly probable, that if I should separate all such, and give you only those who know they never were vaccinated, that we should find the death-rate among the unvaccinated Germans considerably higher. I name the Germans particularly, because, as a rule, they are all vaccinated. It is very rare to have a German tell you that he never was vaccinated.

The death-rates among those showing good cicatrices, compare as follows:—United States, 7.55 per cent.; Germany, 11.7 per cent.; Ireland, 13.33 per cent.; other nativities, 15 per cent. These figures give us the gratifying information that a good vaccine mark, secured by our mode of vaccinating, affords the best protection known.

The death-rates among those showing fair cicatrices, compare as follows:—United States, 18.6 per cent.; Germany, 11.32 per cent.; Ireland, 20 per cent.; other nativities, 10 per cent.; unknown nativities, 50 per cent. These figures show a very decided

difference in favor of the fair vaccine marks, the result of vaccination in Germany.

The death-rates among those showing poor cicatrices, compare as follows:—United States, 24.85 per cent.; Germany, 8.01 per cent.; Ireland, 37.5 per cent.; other nativities, 23.53 per cent.; unknown nativities, only one admitted, and that one died. These figures show a very great difference in favor of the poor vaccine marks of Germany; which, indeed, exhibit the strange anomaly of appearing to protect better than either her good or fair marks. Germany vaccinates well, as we shall see presently. She makes the largest number of insertions, and gives us the best and most characteristic scars; and yet, not unfrequently we find, on examining the arms of her subjects, from one to a dozen whitish spots, the result of vaccination, differing only from the surrounding skin by being a shade or two whiter, presenting neither an excavated nor honey-combed appearance. When such scars are the result of genuine vaccination—and they usually are with the Germans—I have found them to protect as well as those which I have characterized as typical.

Lastly, the death-rates among the post-vaccinal cases compare as follows:—United States, 16.62 per cent.; Germany, 10.4 per cent.; Ireland, 24 per cent.; other nativities, 17 per cent.; unknown nativities, 50 per cent. These figures show a very marked difference in favor of the vaccinations performed in Germany, Ireland giving the highest rate of mortality, while the United States stands midway between the two.

Why, then, this marked difference in favor of the vaccinations of Germany? The answer, it seems to me, must be found in one of the two reasons, viz.: either in the quality or source of the virus used, or else in the large number of insertions; for the Germans are peculiar for vaccinating in many places at the same time. I have counted on a single individual as many as seventeen good vaccine scars. These are the only differences that I am aware of between the mode of vaccinating in Germany and that of the other countries named.

Which then is it? I believe it is almost, if not wholly, due

to the quality and source of the virus which they use. Their mode of vaccinating is from arm to arm, with eighth-day lymph, which is much more reliable than the crust. To this fact I am able to bear testimony by my own personal experience, for when I was one of your vaccine physicians I embraced every opportunity to practice arm to arm vaccination, with the result of very rarely, if ever, failing to develop a genuine vaccine vesicle in one who was susceptible to vaccina. Indeed, I have succeeded in this way where I had repeatedly failed with the crust. The vesicle which is secured by this mode must always be genuine, never spurious, provided that nothing but lymph be used from a vesicle that has not passed beyond its eighth day of development. These facts are abundantly supported by the table which we last studied, for we learned there that the Germans—no matter whether they presented good, fair, or poor cicatrices—were all equally well protected, showing, as I believe, that they had all been vaccinated with the specific virus that has produced nothing but genuine results.

The other reason which I have named (the large number of insertions) has, I am inclined to think, but little to do with the increased protection which the Germans enjoy. I have the data at my command to determine this point, but have not the time at present to glean it from the Record Book. But if this is the source of their better protection, why then should those vaccinated in the United States, and showing good cicatrices, give a mortality rate of only 7.55 per cent.; while those vaccinated in Germany and showing good cicatrices, give a mortality rate increased to 11.7 per cent.? For we all know that in the United States very rarely more than three insertions are made, while the Germans seldom make less than six.

We will next search the record of admissions and see what it will show us, with reference to revaccination. By carefully searching the record over, I am unable to find out of the 1,227 variolous cases more than 14, which have been, as they believe, successfully revaccinated. I have, of course, excluded all those in which the operation had been performed less than seven days

prior to the appearance of the eruption, for the reason already given.

We will now note those cases separately and judge of their merits afterwards. We note them in the order as they appear on the Record Book.

1,072 was vaccinated in infancy; shows a poor mark; says she was revaccinated 31 years ago; mark doubtful; varioloid; recovered; 23 days in the hospital.

1,241 was vaccinated in infancy; shows a poor mark; says she was revaccinated 6 or 8 years ago; fair mark; eruption very light; mostly papular; slightly vesicular; was not confined to bed; 7 days in hospital.

1,346 was vaccinated in infancy; good mark; revaccinated 8 days before the appearance of the eruption; presents a partially developed vaccine vesicle; varioloid; recovered; 18 days in hospital.

1,357 was vaccinated in infancy; poor mark; revaccinated 24 years ago; poor mark; varioloid, mild; recovered; 8 days in hospital.

1,425 was vaccinated in infancy; fair mark; revaccinated 9 years ago; says it took; no mark to show for it; confluent variola; recovered; 77 days in hospital.

1,430 was vaccinated in infancy; poor mark; revaccinated 13 years ago; no mark to show for it; varioloid, mild; recovered; 7 days in hospital.

1,464 was vaccinated in infancy; poor mark; revaccinated 4 weeks prior to admission; says it took slightly; varioloid; recovered; 14 days in hospital.

1,514 was vaccinated in infancy; poor mark; revaccinated 11 years ago; probably successfully; varioloid; recovered; 19 days in hospital.

1,572 was vaccinated in infancy; fair mark; revaccinated 8 years ago; fair mark; variola; recovered; 28 days in hospital.

1,750 says he was vaccinated in infancy; no visible mark; revaccinated 11 days prior to appearance of eruption; apparently successfully; variola; died.

1,937 was vaccinated in infancy; good mark; revaccinated 10

years ago; good mark; varioloid, mild; recovered; 6 days in hospital.

1,988 was vaccinated in infancy; good mark; revaccinated since puberty; poor mark; varioloid, mild, only about half dozen vesicles; recovered; 19 days in hospital.

2,083 was vaccinated in infancy; poor mark; revaccinated 8 days prior to the appearance of the eruption; taking well; varioloid, mild; eruption aborted in the papular stage; recovered; 10 days in hospital.

2,156 was vaccinated in infancy; fair mark; revaccinated 3 months prior to admission; says it took; mark doubtful; variola; 19 days in hospital.

After studying these cases carefully with the desire to give them the fairest possible construction, I am unable to refer to more than six of them (Nos. 1,241, 1,357, 1,514, 1,572, 1,937, and 1,988) as being anything like authenticated instances of the variolous disease, following successful revaccinations. And you will mark that, in every instance the revaccination had been performed a number of years ago.

Cases Nos. 1,425 and 1,430, think they had been successfully revaccinated, but as they are unable to show any scars as the result of it, they certainly cannot be classified as authenticated cases.

Cases No. 1,346, 1,750, and 2,083, had all been revaccinated after exposure, so that the most that could have been expected from the operation in their cases, would have been a modifying influence over the disease, which was very markedly the case with No. 2,083, for we have seen that the eruption in this case, did not progress farther than the papular stage.

Case No. 1,750, the one that died, was apparently successfully revaccinated, but I cannot help entertaining a doubt of the genuineness of the vaccine disease.

There is one fact worthy of note, elicited from these cases, and that is, of the fourteen cases, only five of them, claim to have been recently revaccinated, and only two of the five before exposure.

Supposing that these two had been successfully revaccinated, which I doubt, I then submit, inasmuch as many thousand revaccinations have been recently performed in the city, and as barely two of them have appeared among 1,227 variolous subjects, that this is proof positive of the merits of re-vaccination.

We will next see what the record shows, with reference to the number of persons in whom small-pox has occurred the second time. We will also cite their individual cases, in the order in which they appear on the record book.

1,226 Came to the hospital as nurse; not vaccinated; says she had small-pox at six years of age; some pitting to show for it; Taken sick on the ninth day, and eruption appeared on the twelfth day from the date of exposure; very light; only slightly vesicular. Was sick only during the initial fever; varioloid, mild; recovered.

1,297 Came to the hospital as nurse; was vaccinated in infancy, poor scar; says he had varioloid when a child; very little pitting to show for it. Was taken sick on the ninth day from date of exposure, rash appearing on the twelfth day, very mild, only slightly vesicular; was sick only during the initial fever; varioloid, mild; recovered.

1,364 Patient vaccinated in infancy; poor mark; says she had varioloid in childhood; some doubtful scars to show for it; varioloid, mild; recovered.

1,468 Patient not vaccinated; says he had small-pox in childhood, no pitting to show for it; variola; recovered.

1,530 Patient vaccinated in infancy; poor mark; says he had varioloid at ten years of age; some doubtful scars to show for it; varioloid, mild; recovered.

1,619 Patient not vaccinated; says he had small-pox when a child; no pitting to show for it; variola; recovered.

1,693 Came to the hospital as nurse (the record fails to show whether vaccinated or not; I am inclined to think he had been); says he had varioloid at 19 years of age; has two or three doubtful scars to show for it. Was taken sick on the fifteenth day from date of exposure; rash appeared two days subsequently, consisting of only a few papules; varioloid, mild; recovered.

1,713 Came to hospital as nurse; not vaccinated; says she had small-pox when two years old; pitting very marked. Was taken sick on the ninth day, and the eruption appeared on the twelfth day from date of exposure; has quite a number of vesicles on her body; they did not advance beyond the vesicular stages; was sick only during initial fever.

1,752 Patient born in England, says she was inoculated at 3 or 4 years of age; never was vaccinated; the record fails to show whether there was any scar at the place of insertion of the virus; there was, however, no pitting; varioloid, mild, consisting of only two or three small vesicles; recovered.

1,718 Patient vaccinated in infancy; poor mark; says he had varioloid at 15 years of age; no pitting to show for it; variola; was of intemperate habits; died on the fourth day of the rash.

1,077 Patient, colored, not vaccinated, says she had small-pox at 15 years of age; no pitting to show for it; was very full of a papular eruption; did not become vesicular; varioloid, mild; recovered.

1,080 Patient, not vaccinated, says she had small-pox when a child; some pitting to show for it; admitted along with her husband and entire family; presents only 3 or 4 vesicles; varioloid mild; recovered.

1,868 Patient vaccinated in infancy; good mark; says he had varioloid in childhood; no pitting to show for it; varioloid; recovered.

2,150 Patient, not vaccinated, says she had small pox at 10 years of age; some doubtful scars to show for it; variola; died on the eleventh day of the rash.

We learn from these notes that 14 of our patients claim to have had either small-pox or varioloid at a prior period of life. The statement of most of them is, no doubt, reliable, while some probably are mistaken. As to how many may be regarded as authentic instances of small-pox occurring the second time, I will leave for others to judge. It is to be remembered, however, that it is no unusual circumstance to discharge patients from the hospital, who have recovered from varioloid, without

being pitted; while it is exceedingly rare to find no pitting after a genuine attack of small-pox.

There is one point of interest connected with the history of those who came to the hospital as nurses and contracted the disease. It is that in the majority of them (3 out of 4), the period of incubation was 9 days.

The fact, then, that small-pox may, and often does, under epidemic influence, occur a second time, justifies the advice that all those who have previously had the disease, should, in times of an epidemic, be subjected to the test of vaccination.

I may be pardoned for intruding here a case in point which occurred in my private practice. In the early part of the present epidemic I suggested to a patient of mine, a lawyer of this city, who had small-pox in childhood and is very deeply pitted, the propriety of being vaccinated. Although a little surprised at my suggestion, he consented to the operation. I vaccinated him, and one week subsequently he returned to my office, somewhat to my surprise, with two perfect vaccine vesicles. I asked him to save me the crusts when they fell off, which he did, and I gave them to Dr. Leaman, one of your vaccine physicians, with the request that he would test them on the arm of an infant and report to me the result. His report is that these crusts have been the means of developing on the arm of an infant a genuine vaccine vesicle.

I argue, therefore, that the result in this case justifies the operation under all similar circumstances; and inasmuch as this person was susceptible to vaccina, so I believe he would have contracted variola had he been exposed before vaccination.

We will next consult the record with the view to ascertain the number of our variolous patients that were admitted in a state of pregnancy, and learn what the results have been. We will briefly cite their individual cases as follows:

1,070 Admitted with confluent variola, in the fourth month of pregnancy; recovered; 44 days in hospital; fetus saved and evincing signs of life.

1,109 Admitted with variola, in the third month of preg-

nancy; aborted on the fourth day of the rash; died the following day.

1,134 Admitted with varioloid in the third month of pregnancy; aborted on the eighteenth day of the rash; recovered.

1,183 Admitted with variola in the second month of pregnancy; recovered without aborting; 18 days in hospital.

1,300 Admitted with varioloid in the fifth month of pregnancy; abortion threatened, but the symptoms were subdued by the use of sulphate of morphia; recovered; only 4 days in hospital; eloped.

1,353 Admitted with confluent variola; had given birth to a seven months child on the first day of the initial fever; child lived for a short time only; our patient died on the third day of the rash.

1,408 Admitted with variola; $5\frac{1}{2}$ months advanced in pregnancy; recovered without aborting; 31 days in hospital.

1,486 Admitted with varioloid in the third month of pregnancy; recovered without aborting; 21 days in hospital.

1,551 Admitted with variola; $7\frac{1}{2}$ months advanced in pregnancy; aborted on first day of eruption; died 5 days subsequently.

1,625 Admitted with varioloid in the third month of pregnancy; recovered without aborting; 14 days in hospital.

1,633 Admitted with variola in the third month of pregnancy; died without aborting on the ninth day of the eruption.

1,687 Admitted with varioloid in the second month of pregnancy; recovered; 14 days in hospital. But, as I learn from her physician, she aborted 10 days after she had been discharged, and that she recovered.

1,691 Admitted with varioloid; $5\frac{1}{2}$ months advanced in pregnancy; aborted on the 26th day of the rash (this foetus showed some slight scars, the only one I have seen that did); recovered; 41 days in hospital.

1,904 Admitted with varioloid; three months pregnant; recovered without aborting; 27 days in hospital.

2,089 Admitted with varioloid in the fifth month of preg-

nancy; died without aborting on the fifth day of the eruption; post-mortem; no eruption on foetus.

2,168 Admitted with variola; 5½ months advanced in pregnancy; aborted on the second day of the eruption; lochia suppressed; died the following day.

We learn from these notes, then, that we have admitted sixteen pregnant women suffering with small-pox. Of whom ten recovered and six died. Seven aborted, seven recovered without aborting, and two died without aborting. Of the seven that aborted three recovered and four died. All those that aborted in the early stage of variola died; while all those that aborted later in the disease, during desquamation, recovered.

We may, therefore, safely conclude that when small-pox is complicated with pregnancy, the danger from the disease is increased; that abortion is liable to occur; and that, when it occurs in the early stage of the disease, peril to life is imminent.

According to my observation, hemorrhage is exceedingly likely to follow abortion under these circumstances, not, however, profuse, but rather a continual draining of blood, which it is next to impossible to control. This soon exhausts the patient, and prevents the eruption from developing. The skin, although sometimes pale, is usually congested and of a livid hue. The eruption remains flat, and in some instances the face and hands are perfectly smooth, showing no indication of the rash. In these cases the only symptoms of small-pox is to be found on the trunk, more especially about the groins, where you will find a flat, suppressed eruption of a livid or purplish hue. Indeed, even here you will sometimes find only purplish spots. so that the true nature of the disease might be either overlooked or mistaken for so-called spotted fever or purpura hæmorrhagica.

I will cite here two cases of parturient females, with small-pox, that were delivered at term one in the hospital, the other only a few hours prior to admission.

1,834 Admitted with varioloid within 2 weeks of expected confinement; she had varioloid mild, and when she had quite recovered gave birth to a child showing no eruption or scars.

The babe was at once vaccinated, the operation being repeated every day for five days in succession. At or near the place where the last insertion was made, there developed a small vesicle of doubtful character. It may have been either an imperfect vaccine vesicle, or a single variolous vesicle, which of the two I was unable to decide. I am inclined to think, however, that it was a single variolous vesicle. It ran a short course, reached its height from the sixth to the eighth day, and drying up left a crust only as large as a pin's head. The child was not sick, nursed well, and left the hospital with its mother, after a residence there of three weeks, in the enjoyment of perfect health.

2,151 Admitted with varioloid, bringing with her an infant 12 hours old. The babe was at once vaccinated. Two insertions were made on one arm; the following day two more were made on the other arm. The last two both developed perfect vaccine vesicles. The child was discharged from the hospital along with its mother, after a residence there of four weeks, unaffected with small-pox. And the crusts from this child's arm successfully vaccinated another child that was admitted under similar circumstances, and protected it likewise from variola. This last case was admitted in 1872, and its history, therefore, is not included in this report.

I have one more table that I desire to present. It is one to show the day of the rash on which my variolous patients have died, to wit:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	27	30
1	4	6	12	24	34	25	22	41	41	38	25	16	12	13	4	3	2	2	2	1	1	2

The first row of figures shows the day of the rash; the second row, the number of deaths.

From this table we learn that variola is most fatal on the ninth, tenth, and eleventh days of the eruption. Those who died within the first three or four days were either young chil-

dren who died in convulsions, or malignant cases of variola ; while those who have died as late as twenty or thirty days of the eruption, have died from some intercurrent disease, such as congestion of the lungs, pneumonia, or pleuro-pneumonia.

Only a few remarks on treatment, and I have finished.

Fully impressed with the fact that there is no specific remedy for small-pox, I have, therefore, in its treatment endeavored to be guided by common sense and general principles.

In the mild variety of small-pox, treatment is not required, for with anything like ordinary care all such cases will recover.

While at the other extreme of the disease, its malignant variety, treatment is of no avail ; they will all die in spite of any and every form of treatment. The proper subjects for treatment, then, are those that present themselves between these two extremes, such as well marked discrete, semi-confluent and confluent variola.

We, at the hospital, rarely see our patients before the initial fever has either passed or well nigh passed. When, however, an opportunity occurs for treatment during the first stage of the disease, we give febrifuge mixtures and cooling drinks ; such as liquor potassæ citratis, or liquor ammoniæ acetatis, combining, with either of these, spiritus ætheris nitrosi, and a little simple syrup. As cooling drinks, ice water and lemonade are freely administered. A febrifuge mixture which I am somewhat partial to, when there is wakefulness and delirium along with the fever, is spiritus ammoniæ acetatis, spiritus ætheris nitrosi, morphinæ acetatis, and a little simple syrup, with the addition, sometimes, of a dovers powder at bedtime. If this will not succeed in quieting my patient, I give bromide of potassium or hydrate of chloral. If vomiting is troublesome, I give subnitrate of bismuth, lime water, or lime water and milk.

As soon as the primary fever is passed, and the patient is restored to quiet, I abandon all the febrifuge mixtures. And now, if I perceive that my patient will have either well marked discrete, semi-confluent, or confluent variola, I institute a supporting plan of treatment in anticipation of the extensive and exhausting sup-

puration that will take place from the whole cutaneous surface, which I believe constitutes one of the chief dangers from the disease, and demands for its counteraction the most liberal use of stimulants and nutrients. I, therefore, order quinine, iron, beef tea, milk, milk-punch, and egg-nog. As the vesicular stage advances I direct that each patient shall have from six to eight grains of quinine, about one fluid drachm of muriated tincture of iron, one quart of milk made into egg-nog, containing six or eight eggs, six or eight ounces of whisky, which is often increased to eight or twelve ounces, and one quart of beef tea. All this must be taken every twenty-four hours.

If the sore-throat is troublesome, and it generally is, we use gargles of chlorate of potash, sage tea, and flax-seed tea. Lemonade is freely used and found very acceptable to the patient.

During the secondary febrile stage I do not return to the febrifuge mixtures, but continue, in the language of Dr. Nebinger, the same "compensative nutritive treatment."

As crustation takes place, and sometimes even before, if there is much burning and itching of the skin, we use olive oil or linseed oil, in combination with lime water and carbolic acid. This we apply freely to the surface with a large camel's hair brush. The troublesome and vexatious boils and abscesses that follow are treated by flax-seed poultices, and by the use of the lance, when suppuration has taken place.

Respectfully submitted.

W. M. WELCH,
Physician-in-Charge.

